PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

United States Patent and Trademark Office
(Box PCT)
Crystal Plaza 2
Washington, DC 20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 12 March 1999 (12.03.99)	
International application No. PCT/US98/15411	**Applicant's or agent's file reference** 234/231 PCT
International filing date (day/month/year) 24 July 1998 (24.07.98)	**Priority date** (day/month/year) 25 July 1997 (25.07.97)
Applicant BRIGGS, Michael, R. et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

12 February 1999 (12.02.99)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

A. Karkachi

Telephone No.: (41-22) 338.83.38

19

PATENT COOPERATION TREATY

REC'D 21 MAY 1999
WIPO PCT

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 234/231-PCT	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US98/15411	International filing date *(day/month/year)* 24 JULY 1998	Priority date *(day/month/year)* 25 JULY 1997
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant LIGAND PHARMACEUTICALS INCORPORATED		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

   I ☒ Basis of the report

   II ☐ Priority

   III ☒ Non-establishment of report with regard to novelty, inventive step or industrial applicability

   IV ☐ Lack of unity of invention

   V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

   VI ☐ Certain documents cited

   VII ☐ Certain defects in the international application

   VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
12 FEBRUARY 1999	06 MAY 1999
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer IREM YUCEL Telephone No. (703) 308-0196

JOYCE BRIDGERS
PARALEGAL SPECIALIST
CHEMICAL MATRIX

Form PCT/IPEA/409 (cover sheet) (January 1994)*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US98/15411

I. Basis of the rep rt

1. This report has been drawn on the basis of *(Substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments)*:

[X] the international application as originally filed.

[X] the description, pages 1-86 , as originally filed.
pages NONE , filed with the demand.
pages NONE , filed with the letter of _____.
pages _____ , filed with the letter of _____.

[X] the claims, Nos. 1-25 , as originally filed.
Nos. NONE , as amended under Article 19.
Nos. NONE , filed with the demand.
Nos. NONE , filed with the letter of _____.
Nos. _____ , filed with the letter of _____.

[X] the drawings, sheets/~~fig~~ 1-7 , as originally filed.
sheets/~~fig~~ NONE , filed with the demand.
sheets/~~fig~~ NONE , filed with the letter of _____.
sheets/~~fig~~ _____ , filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

[X] the description, pages none.

[X] the claims, Nos. none.

[X] the drawings, sheets/~~fig~~ none.

3. [ ] This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the ~~Supplemental Box~~ Additional observations below (Rule 70.2(c)).

4. Additional observations, if necessary:

NONE

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The question whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been and will not be examined in respect of:

☐ the entire international application.

☒ claims Nos. 9-14

because:

☐ the said international application, or the said claim Nos. _ relate to the following subject matter which does not require international preliminary examination *(specify)*.

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. _ are so unclear that no meaningful opinion could be formed *(specify)*.

☐ the claims, or said claims Nos. _ are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for said claims Nos. 9-14.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US98/15411

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims	1-8 and 15-25	YES
	Claims	none	NO
Inventive Step (IS)	Claims	1-8 and 15-25	YES
	Claims	none	NO
Industrial Applicability (IA)	Claims	1-8 and 15-25	YES
	Claims	none	NO

2. CITATIONS AND EXPLANATIONS

Claims 1-8 and 15-25 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest the control regions of the human PPARγ gene. The prior art does not teach nor fairly suggest methods of screening for agents which modulate expression of the human PPARγ gene by using the control region of the human PPARγ gene in reporter gene constructs. Further the claimed invention recited by the instant claims has industrial applicability.

---------- NEW CITATIONS ----------

NONE

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

CLASSIFICATION:

The International Patent Classification (IPC) and/or the National classification are as listed below:

IPC(6): C07H 21/02, 21/04; C12N 5/06, 5/08, 5/10; C12Q 1/02, 1/68; C12P 21/06 and US Cl.: 536/23.1, 23.5, 24.1; 435/6, 29, 69.1, 357, 365, 370

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/15411

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :Please See Extra Sheet.
US CL :536/23.1, 23.5, 24.1; 435/6, 29, 69.1, 357, 365, 370

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 536/23.1, 23.5, 24.1; 435/6, 29, 69.1, 357, 365, 370

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 5,686,596 A (MUKHERJEE) 11 November 1997, see entire document.	1-8, 15-25
A, P	FAJAS et al. The Organization, Promoter Analysis, and Expression of the Human PPAR gamma Gene. The Journal of Biological Chemistry. 25 July 1997, Vol. 272, No. 30, pages 18799-18789, see entire document.	1-8, 15-25
Y, P	US 5,726,041 A (CHRESPI et al.) 10 March 1998, see entire document.	1-8, 15-25
Y	GEARING et al. Structure of the Mouse Peroxisome Proliferator Activated Receptor alpha Gene. Biochemical and Biophysical Research Communications. 28 February 1994, Vol. 199, No. 1, pages 255-263, see entire document.	1-8, 15-25

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 25 SEPTEMBER 1998	Date of mailing of the international search report 28 OCT 1998
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer IREM YUCEL Telephone No. (703) 308-0196

Form PCT/ISA/210 (second sheet)(July 1992)★

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/15411

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	ZHU et al. Structural organization of mouse peroxisome proliferator-activated receptor gamma (mPPARgamma) gene: Alternative promoter use and different splicing yield two mPPR gamma isoforms. Proceedings of National Academy of Sciences, U.S.A. August 1995, Vol. 92, pages 7921-7925, see entire document.	1-8, 15-25

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/15411

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 9-14
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

Please See Extra Sheet.

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/15411

A. CLASSIFICATION OF SUBJECT MATTER:
IPC (6):

C07H 21/02, 21/04; C12N 5/06, 5/08, 5/10; C12Q 1/02, 1/68; C12P 21/06

B. FIELDS SEARCHED
Electronic data bases consulted (Name of data base and where practicable terms used):

APS, STN (CAPLUS), DIALOG (MEDLINE, BIOSIS, SCISEARCH)
TERMS: PPAR, peroxisome proliferator activated receptor?, genom? clon? untranslate? region? sequence? regulat? control? element? human?

BOX I. OBSERVATIONS WHERE CLAIMS WERE FOUND UNSEARCHABLE
2. Where no meaningful search could be carried out, specifically:

The above claims are drawn to specific sequences or specific regions (subsequences) of particular genes. The CRF submitted in response to a telephone call to Applicant's representative did not comply with the sequence rules. Applicant's representative was FAXed a copy of the error report, but has not yet submitted a subsequent CRF.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	**ES**	Spain	**LS**	Lesotho	**SI**	Slovenia
AM	Armenia	**FI**	Finland	**LT**	Lithuania	**SK**	Slovakia
AT	Austria	**FR**	France	**LU**	Luxembourg	**SN**	Senegal
AU	Australia	**GA**	Gabon	**LV**	Latvia	**SZ**	Swaziland
AZ	Azerbaijan	**GB**	United Kingdom	**MC**	Monaco	**TD**	Chad
BA	Bosnia and Herzegovina	**GE**	Georgia	**MD**	Republic of Moldova	**TG**	Togo
BB	Barbados	**GH**	Ghana	**MG**	Madagascar	**TJ**	Tajikistan
BE	Belgium	**GN**	Guinea	**MK**	The former Yugoslav Republic of Macedonia	**TM**	Turkmenistan
BF	Burkina Faso	**GR**	Greece			**TR**	Turkey
BG	Bulgaria	**HU**	Hungary	**ML**	Mali	**TT**	Trinidad and Tobago
BJ	Benin	**IE**	Ireland	**MN**	Mongolia	**UA**	Ukraine
BR	Brazil	**IL**	Israel	**MR**	Mauritania	**UG**	Uganda
BY	Belarus	**IS**	Iceland	**MW**	Malawi	**US**	United States of America
CA	Canada	**IT**	Italy	**MX**	Mexico	**UZ**	Uzbekistan
CF	Central African Republic	**JP**	Japan	**NE**	Niger	**VN**	Viet Nam
CG	Congo	**KE**	Kenya	**NL**	Netherlands	**YU**	Yugoslavia
CH	Switzerland	**KG**	Kyrgyzstan	**NO**	Norway	**ZW**	Zimbabwe
CI	Côte d'Ivoire	**KP**	Democratic People's Republic of Korea	**NZ**	New Zealand		
CM	Cameroon			**PL**	Poland		
CN	China	**KR**	Republic of Korea	**PT**	Portugal		
CU	Cuba	**KZ**	Kazakstan	**RO**	Romania		
CZ	Czech Republic	**LC**	Saint Lucia	**RU**	Russian Federation		
DE	Germany	**LI**	Liechtenstein	**SD**	Sudan		
DK	Denmark	**LK**	Sri Lanka	**SE**	Sweden		
EE	Estonia	**LR**	Liberia	**SG**	Singapore		

SEQUENCE LISTING

<110> Michael R. Briggs
Regis S. Saladin
Johan Auwerx
Lluis Fajas

<120> HUMAN PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR GAMMA (PPARγ) GENE REGULATORY SEQUENCES AND USES THEREFOR

<130> 234/231-PCT

<150> 60/053,692
<151> 1997-07-25

<160> 60

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 503

<212> DNA

<213> Human PPARγ1 proximal promoter, exon A1, and intron A1

<400> 1

```
cccctgcccc tgcccctgcc cccaccccca cccccacccc caccccagc cggcgcccgc 60
gcccgccccc gcgccgggcc cggctcggcc cgacccggtt ccgccgcggg caggcggggc 120
ccagcgcact cggagcccga gcccgagccg cagccgccgc ctggggcgct tgggtcggcc 180
tcgaggacac cggagagggg cgccacgccg ccgtggccgc aggtcagagt acgggtgccc 240
gcggcgctcg ggaaccggct gctgcctggg cggggagtgc tcagggaggg ggcgcggagg 300
gctggggccg agggtctggg gggtagggcc gaggaaacgg caactgacgg ggtcccagac 360
ggatgagagc tggggagaag ggggtctcgg ctgaggggtc cggggctgag gcacggtcat 420
ggtccggcag gacccggact gacgggtctc gggcgggcgg ctcacgggtg accgggtgaa 480
tgggtctcgg gctgacggca ccc                                        503
```

<210> 2

<211> 2688

<212> DNA

<213> Human PPARγ1 promoter

<400> 2

ggagctccac gcggtggcgg ccgctctaga actagtggat cccccgggct gcaggaattc 60
gaggctgcag tgaactatga ttgcaccact gcactccagc ctgggtgaga gagcaatacc 120
ttgtctcaaa acaaacaaac aaacaaaacc ccatgagata tcacttcata ccctttaggt 180
tggctaaaat aaaaaagact ataacaagtg ttgacaagga tgtggaaaaa ctggaaccct 240
gacacattgc tggtgggatt gtaaaatggt gtgcccactt tggaaaacag actggcagtt 300
cctcaaaaac accgagttac gttatgatcc tgcagttctg tccctaggta tatactcaag 360
agaaataaaa atatatgtcc acaagtaacc ttgtacatga atgctcacag cagcattatt 420
cataatagcc cataaaagta gaaacaacct aaatattcat caattcatgg gatgaataaa 480
caaaatgtgg tatatgtgta taatggaata ttgaccataa aaaggaatga aatattaata 540
taagctataa catggatgag cctccacaaa tactatgcta agtgaaagaa gaaagtcaca 600
aaggacttca tattctatga ttctatttat atgaattgtc cagaataggt aaatctatag 660
agaaagaata tctctatcta gagttggtgg aatgactgtt aatggagagg gggttccttt 720
ttggagtgat gaaaatgttc taagggtaga tttggtgatg atggcacaac tctgtcaata 780
aactaaaact cattgaactg tacattttat ttatttattt ttgagatgga gtcttgctct 840
ggggctgaag tgcagtggcg caatctcggc ttgtaacctc tgcctcccag ggtcaagcga 900
ttctactgcc tcagcccccc gagtagctga gattacaggc acgtgccacc acgcccagct 960
aatttttgta tttcttagta gagatggagt ttcaccatgt tggccaggct ggtcttgaac 1020
tcccggcctc aagtgatcca cctgcctcgg cctcccaaag tgctgggatt acaggcgtga 1080
gctgccatac ccggcctgaa ttgtacattt tacttctatg gtatttacat tttagattat 1140
attaattatt cctcaataaa gctgtgattt taaaaagcag gctaggcgca gtggctggtg 1200
cctataatcc cagcactttg gaaagctgag gcaggaggat cacttgagcc caggagtttc 1260
agactagtct aggcaacatg tcaagacaca gtctctacta aacaattaaa attaaaaaaa 1320
aaaattagcc aggcatggtg gtgtgcacct gtagtcccag ctacttggga gcctggggtg 1380
ggaggattcc ttgagcccgg gaagtcgagg ctgaagtgag ccgtgattgc gccacagcac 1440
tccagcctgg gcgacacagc aacaccctgt ctcatggaag aaagaaagaa aagaaaggaa 1500
gaaagaaaaa aaaaaagcag attggaactc tggaattaac aagaagtagg acgcacggag 1560
cacttccgcc tgagtggaga ctgtggatcc gggtcaacct gactacctaa atcacaggcc 1620
aataaatggt ctttcagtgg tcagtccctg taagatccgt ggctctcagc ttcttatctt 1680
aggggctgtg gaggaaggac atgattatgt tgatttaagc gctgaatatt ttcccttgtg 1740
atacccatcc tcgcaaaact ttgcttcaac cacaaacgag gaccttctgt accagagggg 1800
caataacaca atgaagctag gaagaaatgc agagcacccc agcatacagt ccataagctt 1860
cctgaagtgg ggggcctcag gcatcgctgc ctccccaaag aggatcaggc ccagaacagt 1920
atgctccaga aataagactg gaaaaaggga aagaggggcc tcaagtccag gagaccagcg 1980
gctttctgaa cgcgcacctg ccaacccact ttggacaggt cacgatggac agcgtggcag 2040
gaaaagaaaa ggtcactgtc tacccaacac atgagaaact gtttctcgtg cctcacgtcc 2100
ccactccgtc cccacccatg ttgtctgagt ccctcggtgt cagaaacact gctaagaaat 2160
ttaagaaatt ctgttaatga gtttaagaaa tgtttttaat gattaaaagt cagtgacttg 2220
tgaataacca tgtaacttac aaacgcaagg aactctgaaa gtgtgcagca ccaccgatca 2280
gaagagaaaa ccaagggacc cgaaatatgc tttaattaaa ttttctttta aaatgtcact 2340
ggaaagaaca tcttgggaag acggcctggc cgatcgccgt gtgaagggca agccactctg 2400
gccgagaggg agccccacac ctcggtctcc ccagaccggc cctggccggg ggcatccccc 2460
taaacttcgg atccctcctc ggaaatggga ccctctctgg gccgcctccc agcggtggtg 2520
gcgaggagca aacgacacca ggtagctgcc gcggggcaga gagtggacgc gggaaagccg 2580
gtggctcccg ccgtgggccc tactgtgcgc gggcggcggc cgagcccggg ccgctccctc 2640
ccagtcgcgc gccgccgccc gcgccctgtt tgggttcatg gggggggtg 2688

<210> 3

<211> 2045

<212> DNA

<213> Human PPARγ2 promoter, exon B, and intron B

<400> 3

gaattcaact gaatatagag aaaactaatt ttacacaact gtaatcactg tagtcatttg 60
gacaaattag caaacccaag ttttgcttta acttggattg ccttaataaa gatgttttgg 120
ggcttaatgg cacagttgct caactccccc actttattcc gtgatgttca gacccagcca 180
gcatttcccc atcaggctct tgcaccatga ttgacaggga cacttttact agtccccttg 240
aagaatgaat agttactcaa tggagattaa ccagatatat atttatttta ctcagaatat 300
cacgataagt ataattcaga gaattattgc cttctaatat actgccctgt gtgggggcgt 360
ctttgaaagt ccgcaaagtc actgcaattc taataggcca ctcatgtgac aagacctgct 420
cccacatcgg taatttggca cagctagtat ttctccttgc caaaaagggc aaaggccttg 480
agcaagaagc cagcttttc ctgattacaa aactgaccac aattcctcgc caacctaaca 540
gcgtaagtct attttttct ggtggtgtgt tattcttctc atagagaact ccatttttc 600
attatgacat agcacttatc gtttaaacat caattgatgt tcaaacatca gctggtgtaa 660
cattgctgca gttgctattg atggataagc tgaagttttt aagaaagcaa acccgatgta 720
taaaattgaa accagatcaa acccttcttc attctcagct atttaatttt acagaattta 780
gatagcagtc agtatcattt tgggcttcac aaatcagtag agtaagtacc ttaggaatat 840
aacatttcag tagcatgctg ataccaacgt ttaaactatg gatacatatt tgaattccaa 900
atttttcttc agataatgtg attagagatt agagattcaa ccagggatag acaccgaaag 960
aaaactttgc ccaaataagc tttctggtat ttcataagca agagatttaa gttttccatt 1020
taagaagcca ttgtgaatta tacaacaata aaaaatgcaa gtggatattg aacagtctct 1080
tctctgataa ttctaaatac agtacagttc acgcccctca cgagacactg aacatgtggt 1140
caccggcgag acagtgtggc aatattatcc ctgtaatgta ccaagtcttg ccagagcagt 1200
gaacattatg acacaacttt ttgtcacagc tggctcctaa taggacagtg ccagccaatt 1260
caagcccagt cctttctgtg tttattccca tctctcccaa atatttggaa actgatgtct 1320
tgactcatgg gtgtattcac gattctgtta cttcaagtct ttttctttta acggattgat 1380
cttttgctag atagagacaa aatatcagtg tgaattacag caaacccata ttccatgctg 1440
ttatgggtga aactctggga gattctccta ttgacccaga aagcgattcc ttcactgata 1500
cactgtctgc aaacatatca caaggtaaag ttccttccag atacggctat tggggacgtg 1560
ggggcattta tgtaagggta aaattgctct tgtagtttgt cttccaggtt gtgtttgttt 1620
taatactatc atgtgtacac tccagtattt taatgcttag ctcgttgcta tcgcgttcat 1680
ttaaaaacat gttcagaacc ttaaaaaagg aaacctaacc taatctatct tatctctgtg 1740
catggctccc atttcctgaa ttttaagcat taaaggtata gttatatcca aaaacaatcc 1800
tgttcatctt tatttcctga gtttgcatag atttcccaag aatacataat ggctttttag 1860
acttgaaggg tcacttttcc tctttcatct catatgttag agatctctca taactgtgtt 1920
atccctcttg cagcactttt attcctcttg aatacctcag ctctttttctg ttctattttg 1980
aaatctaagt atgtgtgtgc acttcagctc tcccaaagaa tgtatatccc acaatgtagg 2040
acaag 2045

<210> 4

<211> 27

<212> DNA

<213> LF-2

<400> 4

tctccggtgt cctcgaggcc gacccaa 27

<210> 5

<211> 27

<212> DNA

<213> LF-14

<400> 5

agtgaaggaa tcgctttctg ggtcaat 27

<210> 6

<211> 27

<212> DNA

<213> LF-18

<400> 6

agctgatccc aaagttggtg ggccaga 27

<210> 7

<211> 30

<212> DNA

<213> LF-20

<400> 7

cattccattc acaagaacag atccagtggt 30

<210> 8

<211> 30

<212> DNA

<213> LF-21

<400> 8

ggctcttcat gaggcttatt gtagagctga 30

<210> 9

<211> 29

<212> DNA

<213> LF-22

<400> 9

gcaattgaat gtcgtgtctg tggagataa 29

<210> 10

<211> 29

<212> DNA

<213> LF-23

<400> 10

gtggatccga cagttaagat cacatctgt 29

<210> 11

<211> 30

<212> DNA

<213> LF-24

<400> 11

gtagaaataa atgtcagtac tgtcggtttc 30

<210> 12

<211> 29

<212> DNA

<213> LF-25

<400> 12

tcgatatcac tggagatctc cgccaacag 29

<210> 13

<211> 30

<212> DNA

<213> LF-26

<400> 13

acataaagtc cttcccgctg accaaagcaa 30

<210> 14

<211> 29

<212> DNA

<213> LF-27

<400> 14

ctctgctcct gcaggggggt gatgtgttt 29

<210> 15

<211> 29

<212> DNA

<213> LF-28

<400> 15

gaagttcaat gcactggaat tagatgaca 29

<210> 16

<211> 29

<212> DNA

<213> LF-29

<400> 16

gagctccagg ggttgtagca ggttgtctt 29

<210> 17

<211> 28

<212> DNA

<213> LF-33

<400> 17

gacgggctga ggagaagtca cactctga 28

<210> 18

<211> 28

<212> DNA

<213> LF-35

<400> 18

agcatggaat aggggtttgc tgtaattc 28

<210> 19

<211> 24

<212> DNA

<213> LF-36

<400> 19

tagtacaagt ccttgtagat ctcc 24

<210> 20

<211> 24

<212> DNA

<213> LF-44

<400> 20

gtcggcctcg aggacaccgg agag 24

<210> 21

<211> 24

<212> DNA

<213> LF-58

<400> 21

cactcatgtg acaagacctg ctcc 24

<210> 22

<211> 24

<212> DNA

<213> LF-59

<400> 22

gccgacacta aaccaccaat atac 24

<210> 23

<211> 24

<212> DNA

<213> LF-60

<400> 23

cgttaaaggc tgactctcgt ttga 24

<210> 24

<211> 26

<212> DNA

<213> AII J PPRE

<400> 24

gatccttcaa cctttaccct ggtaga 26

<210> 25

<211> 30

<212> DNA

<213> ACO PPRE

<400> 25

gatcccgaac gtgacctttg tcctggtccc 30

<210> 26

<211> 27

<212> DNA

<213> LPL PPRE

<400> 26

gatccgtctg ccctttcccc ctcttca 27

<210> 27

<211> 19

<212> DNA

<213> γ AS

<400> 27

gcattatgag catccccac 19

<210> 28

<211> 20

<212> DNA

<213> γS

<400> 28

tctctccgta atggaagacc 20

<210> 29

<211> 19

<212> DNA

<213> γ2S

<400> 29

gcgattcctt cactgatac 19

<210> 30

<211> 52

<212> DNA

<213> CDS

<400> 30

ttctagaatt cagcggccgc tttttttttt tttttttttt tttttttttt vn 52

<210> 31

<211> 201

<212> DNA

<213> PPARγ1 proximal promoter

<400> 31

accccaccc ccacccccag ccggcgcccg cgcccgcccc cgcgccgggc ccggctcggc 60
ccgacccgga tccgccgccg cgggcaggcg gggcccagcg cactcggagc ccgagcccga 120
gccgcagccg ccgcctgggg cgcttgggtc ggcctcgagg acaccggaga ggggcgccac 180
gccgccgtgg ccgcagaaat g 201

<210> 32

<211> 177

<212> DNA

<213> PPARγ2 proximal promoter

<400> 32

gtcctttctg tgtttattcc catctctccc aaatatttgg aaactgatgt cttgactcat 60
gggtgtattc acgattctgt tacttcaagt ctttttcttt taacggattg atcttttgct 120
agatagagac aaaatatcag tgtgaattac agcaaaccca tattccatgc tgttatg 177

<210> 33

<211> 468

<212> DNA

<213> PPARγ3 proximal promoter

<400> 33

taatcctttt aaggtctagt ttttcttaag tctgtgcagt aatagaggta tcgtcattca 60
tgtgacataa aagatggaaa ggggcttcat tcatgttagt gatggaaata ggaaagtagg 120
tgaagtgatt ttaatagatg tttcttttat gaaataattt ttaaagattg tccagccctg 180
catgatttat gatgaatcat tttgtggtct gttagttact tttagagaat agaaagcatt 240
gtaggctcag ggaaagcaaa cattcagaat gaaatccaat agagaaggta aatttatttg 300
ggcatgtaca ttttggcagc ctaggctgtg tacatgtgta cacattctga acatgtgtgt 360
atattgaaaa tcttgtctct tttttattgt taagatttga aagaagccga cactaaacca 420
ccaatataca acaaggccat tttgtcaaac gagagtcagc ctttaacg 468

<210> 34

<211> 1433

<212> DNA

<213> PPARγ3 promoter, exon A2, and intron A2

<400> 34

gagaatacag gcacatgcca ccatgcccag ctaatttttc tgtttttgt agagacagga 60
tttcgctgtg gtgctcaggc tggtctccaa ctcctgggct caagcaatcc gcctgcctca 120
gccttccaaa gtgaaaaggt tttctctcat ttttcaaata gaagtactaa acaatgccag 180
agaaataaat aaacaggcaa aatacgttgg ctatagttta tattatttcc tgctacagtt 240
aacaaaatgg gaagacattt tatcttcatg gtctactaca tttatgccat gtgttaagta 300
ataaaatagc ttttgtaaat tataaattaa aaggtacaga tttaaaagag aaaatactgt 360
agagttttca tgtaggtaag actgtgtaga atgtcgggtc tcgatgttgg cgctattcaa 420
gccctgatga taaggctttt ggcattagat gctgttttgt cttcatggaa aatacagcta 480
ttctaggatc cttgagcctt tcataagaga taaggttgtg aatcctaaga ccctaggacc 540
atttacttag atgatctgct ctctggttcg tcctctgaaa agtctgcttc gtgaggggtg 600
tgctgcattt gccttgccta agtggtgtgg cacacaactg tactgtcacc ttaggcttaa 660
taaccatgtg tcatctagaa tgaagttata ttttaaaaag gatcgttttt gccatgtata 720
aattttcaaa cattaacttt cagggttatt aatccttta aggtctagtt tttcttaagt 780
ctgtgcagta atagaggtat cgtcattcat gtgacataaa agatggaaag gggcttcatt 840
catgttagtg atggaaatag gaaagtaggt gaagtgattt taatagatgt ttcttttatg 900
aaataatttt taaaagattg tccagccctg catgatttat gatgaatcat tttgtggtct 960
gttagttact tttagagaat agaaagcatt gtaggctcag ggaaagcaaa cattcagaat 1020
gaaatccaat agagaaggta aatttatttg ggcatgtaca ttttggcagc ctaggctgtg 1080
tacatgtgta cacattctga acatgtgtgt atattgaaaa tcttgtctct tttttattgt 1140
taagatttga aagaagccga cactaaacca ccaatataca acaaggccat tttctcaaac 1200
gagagtcagc ctttaacggt aagtaaaatc agaatttata ctgcatttgt attgaaaagt 1260
atccctttta aagaatatgt aaattataca ttgttatttt attgtaaaat ttcctagaga 1320
gtgatttttg actattataa tactttctgc tatataattt tccagtcagt tggactatgc 1380
agtgtaacat atttgtctaa cacaaaacaa aggtaagata ggaaaatgac ctagaagttg 1440
agaaataact caaatcctta aaa 1433

<210> 35

<211> 695

<212> DNA

<213> Intron B, exon 1, and intron 1

<400> 35

ctgggataac aggtgtgagc cactgtgcct ggcctgtata ctataagttt aaaatttttg 60
tctattatac tcaataaagc tggacaaaat tttaaataaa taacagcagt cattaacaga 120
ctcaattgat gacctaatgt agaagttaat gagagcaggc ctgttggcaa aaaggcattt 180
atatggatac actgtatgta tctgcactgt ttcaggatcc tctattatga tacctgggta 240
aagggtgact tcctttctat cataaaacag cctagacagc actaagaagg tggttatgtt 300
cttttctgtt gttgtgagcg cccagatgag attactttgc caaagactct tttcatttct 360
ctttctgaaa ctctgtgaga ttgctgtgtt ctctaggact taacttcaca gctagtctat 420
ttttcctttc agaaatgacc atggttgaca cagagatgcc attctggccc accaactttg 480
ggatcagctc cgtggatctc tccgtaatgg aagaccactc ccactccttt gatatcaagc 540
ccttcactac tgttgacttc tccagcattt ctactccaca ttacgaagac attccattca 600
caagaacaga tccagtggtt gcagattaca agtatgacct gaaacttcaa gagtaccaaa 660
gtatgatgtt tgttttcact tttcagacta ctagg 695

<210> 36

<211> 313

<212> DNA

<213> Intron 1, exon 2, and intron 2

<400> 36

ctgttttcat gggataatta tcctctcaca tgtctccata cacaggtgca atcaaagtgg 60
agcctgcatc tccaccttat tattctgaga agactcagct ctacaataag cctcatgaag 120
agccttccaa ctccctcatg gcaattgaat gtcgtgtctg tggagataaa gcttctggat 180
ttcactatgg agttcatgct tgtgaaggat gcaaggtaat taaaaaaaaa gtcttcaaag 240
aaattgttga aactttatta tttcatttca gcagaacccc ttttttaggt gatacaatat 300
atgaattttt ttt 313

<210> 37

<211> 473

<212> DNA

<213> Intron 2, exon 3, and intron 3

<400> 37

gataccttte gctgtaggtt cgtgcttcca tgtgtcataa agacttaaaa tttgcttctt 60

ttttatccct ttgcagggtt tcttccggag aacaatcaga ttgaagctta tctatgacag 120
atgtgatctt aactgtcgga tccacaaaaa aagtagaaat aaatgtcagt actgtcggtt 180
tcagaaatgc cttgcagtgg ggatgtctca taatggtaag taaacagtca tcaccatata 240
ctttattatt ctcattatag ctgccagacc agtggacact aaagccattg ccaaaaatgt 300
gtacagtttt tccaccaaat gccagaattt agaatattgc atggcgataa aacatttctc 360
ttttaggtca gtgtttttaa agttttatta tagaaccttt ctctctgtgg ttgggcatct 420
gccatgagga gaaaagagac ttgaaaaatc tgggggatta tgggaaaaac ctt 473

<210> 38

<211> 706

<212> DNA

<213> Intron 3, exon 4, and intron 4

<400> 38

acaactttga attctgcaca gtttcgtatt ttaattcgtg aaacgtgttg atccttctaa 60
gtgcctgacc ttaggtcaag tgctggggat acaaagaagg tgacctttga attgggtctt 120
gagggatgag taggagttgg ttctcaatta tttcacgttt aagtcgacat acttccctcc 180
ctttgctaaa ctcgaattct ttcactttct cagcaggagt atgcattaac ttttaaaaat 240
gaaagttaac ggtttaattt ttactgatgg tctgtgctac ttttgtgaaa taaaaacatg 300
agcaaagtgg tagacagaaa ccaggactca agagcagtgg aggaggaggg cttctactgt 360
gtgggaacga gggctgggag agcacagtgt gtgttcagag cagtagtaat ccaatgattc 420
atcctgtcat tcctcttcct ctatagccat caggtttggg cggatgccac aggccgagaa 480
ggagaagctg ttggcggaga tctccagtga tatcgaccag ctgaatccag agtccgctga 540
cctccgtgcc ctggcaaaac atttgtatga ctcatacata aagtccttcc cgctgaccaa 600
agcaaaggcg agggcgatct tgacaggaaa gacaacagac aaatcagtta gttctcttct 660
gctgtcttca ttgggggagg cgggaagttg ttttgggatt tttgtt 706

<210> 39

<211> 732

<212> DNA

<213> Intron 4, exon 5, and intron 5

<400> 39

gggaaagaag accaaaattg gtgaaatatg tttggtccca gaagataatt aagatgaata 60
aaagaacttg agagtatttt ctcattatta agcatcttca gctttaaaga ttttagttag 120
caaagcaagt ttacataaac agttttctga acctgggatg gcattcactg tgagttagaa 180
atctccaagt catcccacgt tttccctgtt ttatttgcag ccattcgtta tctatgacat 240
gaattcctta atgatgggag aagataaaat caagttcaaa cacatcaccc ccctgcagga 300
gcagagcaaa gaggtggcca tccgcatctt tcagggctgc cagtttcgct ccgtggaggc 360
tgtgcaggag atcacagagt atgccaaaag cattcctggt tttgtaaatc ttgacttgaa 420
cgaccaagta actctcctca aatatggagt ccacgagatc atttacacaa tgctggcctc 480
cttgatgaat aaagatgggg ttctcatatc cgagggccaa ggcttcatga caagggagtt 540
tctaaagagc ctgcgaaagc cttttggtga ctttatggag cccaagtttg agtttgctgt 600
gaagttcaat gcactggaat tagatgacag cgacttggca atatttattg ctgtcattat 660
tctcagtgga ggtaagattt gtcttttgat cttctatgaa agagggtggg atgatggtgg 720
ggtggccaaa ag 732

<210> 40

<211> 592

<212> DNA

<213> Intron 5, exon 6, and 3' UTR

<400> 40

tccccaccta tttaagatac aaagcaaaac aaaccaaaaa tacagatgag ttgcttggta 60
gagntgcnta ggcctccaag gcggggccca gaggattttt tgactgaacc ccctgttgtg 120
ttttccatat gtgcttcccc agaccgccca ggtttgctga atgtgaagcc cattgaagac 180
attcaagaca acctgctaca agccctggag ctccagctga agctgaacca ccctgagtcc 240
tcacagctgt ttgccaagct gctccagaaa atgacagacc tcagacagat tgtcacggaa 300
cacgtgcagc tactgcaggt gatcaagaag acggagacag acatgagtct tcacccgctc 360
ctgcaggaga tctacaagga cttgtactag cagagagtcc tgagccactg ccaacatttc 420
ccttcttcca gttgcactat tctgagggaa aatctgacca taagaaattt actgtgaaaa 480
agcgttttaa aaagaaaagg gtttagaata tgatctattt tatgcatatt gtttataaag 540
acacatttac aatttacttt taatattaaa aattaccata ttatgaaatt gc 592

<210> 41

<211> 13

<212> DNA

<213> PPARγ3-E-box

<400> 41

attcatgtga cat 13

<210> 42

<211> 13

<212> DNA

<213> PPARγ3-E-box

<400> 42

attcatgcat cat 13

<210> 43

<211> 13

<212> DNA

<213> A1 (97) Donor

<400> 43

cgcaggtcag agt 13

<210> 44

<211> 13

<212> DNA

<213> A1 (97) Acceptor

<400> 44

ttgttaagat ttg 13

<210> 45

<211> 13

<212> DNA

<213> A2 (74) Donor

<400> 45

taacggtaag taa 13

<210> 46

<211> 13

<212> DNA

<213> A2 (74) Acceptor

<400> 46

cctttcagaa atg 13

<210> 47

<211> 12

<212> DNA

<213> B (211) Donor

<400> 47

caaggtaaag tt 12

<210> 48

<211> 13

<212> DNA

<213> B (211) Acceptor

<400> 48

cctttcagaa atg 13

<210> 49

<211> 12

<212> DNA

<213> 1 (213) Donor

<400> 49

caaagtatga tg 12

<210> 50

<211> 13

<212> DNA

<213> 1 (231) Acceptor

<400> 50

atacacaggt gca 13

<210> 51

<211> 12

<212> DNA

<213> 2 (170) Donor

<400> 51

caaggtaatt aa 12

<210> 52

<211> 12

<212> DNA

<213> 2 (170) Acceptor

<400> 52

ctttgcaggg tt 12

<210> 53

<211> 12

<212> DNA

<213> 3 (139) Donor

<400> 53

aatggtaagt aa 12

<210> 54

<211> 13

<212> DNA

<213> 3 (139) Acceptor

<400> 54

ctctatagcc atc 13

<210> 55

<211> 12

<212> DNA

<213> 4 (203) Donor

<400> 55

atcagttagt tc 12

<210> 56

<211> 12

<212> DNA

<213> 4 (203) Acceptor

<400> 56

atttgcagcc at 12

<210> 57

<211> 12

<212> DNA

<213> 5 (451) Donor

<400> 57

ggaggtaaga tt 12

<210> 58

<211> 13

<212> DNA

<213> 5 (451) Acceptor

<400> 58

ttccccagac cgc 13

<210> 59

<211> 12

<212> DNA

<213> 6 (248) Donor

<400> 59

tactagcaga ga 12

<210> 60

<211> 44

<212> DNA

<213> Adaptor

<400> 60

ctaatacgac tcactatagg gctcgagcgg ccgcccgggc aggt